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(56) Documents cited:

GB 1585318

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4218155

GB 1474734

US

3958571

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(58) Field of search

A4K

Selected US specifications from IPC sub-classes A45D A61M

(54) Liquid dispenser having an absorbent applicator tip

(57) A dispensing apparatus, e.g. for medicines or cosmetics, comprises a generally tubular container (11) which has a body portion (14) and a substantially more narrow tip portion (15). The container is adapted to be filled with liquid (13). The tip portion is easily rupturable from the container body portion to allow the egress of liquid from the container. The apparatus also includes an absorbent swab member (12) covering the tip portion of the container and the adjacent body portion so as to be adapted to receive liquid from the container body when the tip portion is ruptured.

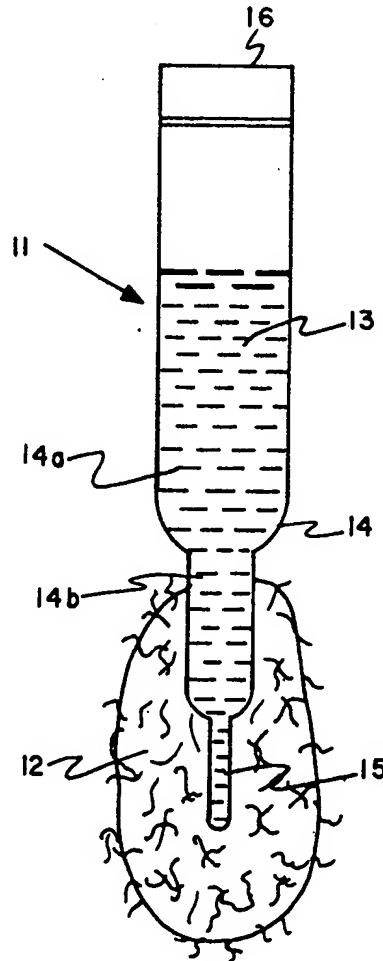
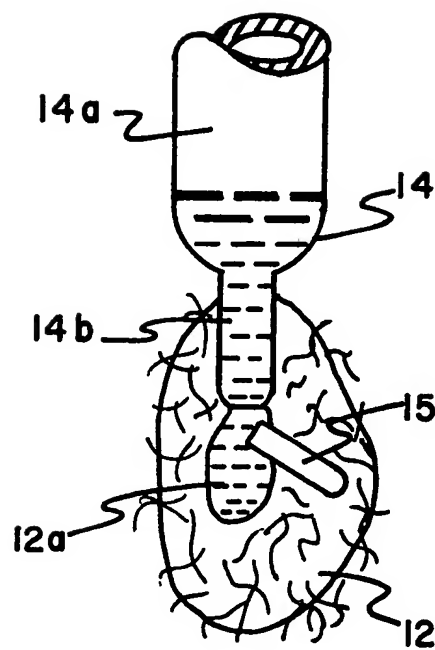
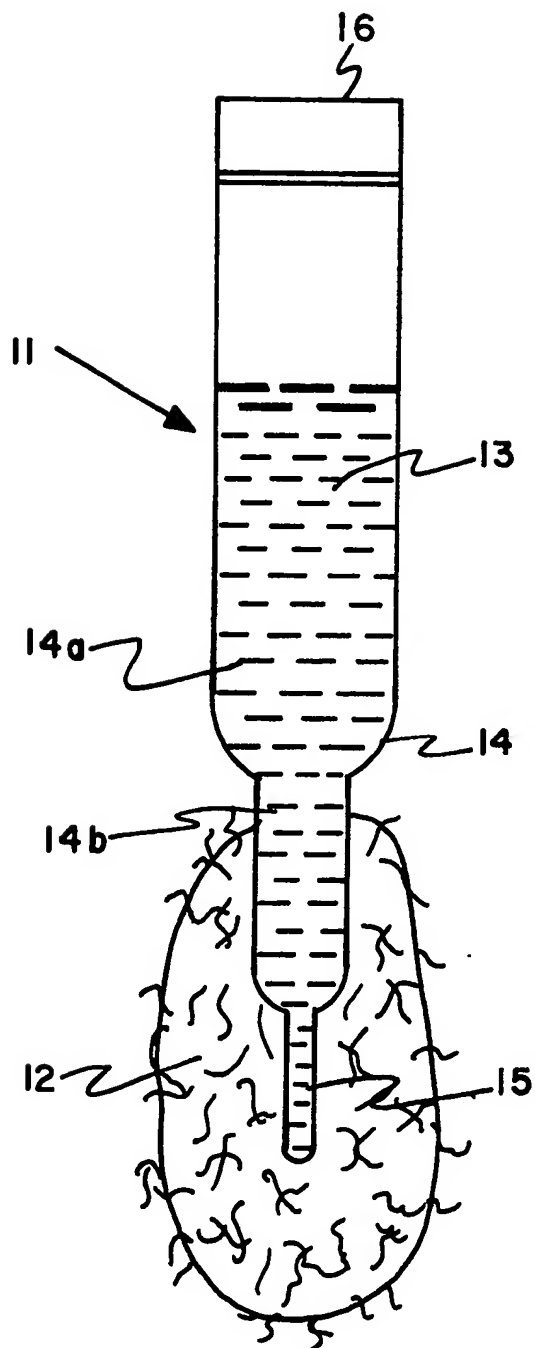


FIG. 1

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SPECIFICATION

Liquid dispenser having an absorbent applicator tip

This invention relates to a liquid dispenser having
 5 an absorbent applicator tip, e.g. a cotton swab tip.
 Such a container may be used for dispensing
 various liquid materials, e.g. medicines or
 cosmetics. As used herein, the term "liquid" refers
 10 to various liquid materials capable of flow from such
 a dispensing device including those having a lotion-
 like consistency.

Various devices have been proposed for
 dispensing liquid from a rupturable container to an
 absorbent applicator tip, e.g. a cotton swab tip.
 15 For example, in U.S. Patent No. 3,519,364 a
 tubular container is described and shown in Fig. 6
 which uses an intermediate sealing plug to contain
 liquid at the lower end of a tubular container having
 an enlarged cross-sectional bore at its tip which is
 20 encased in a wad of batt or other fibrous material.
 The thickness of the wall section of the tubular
 container is thinner in the enlarged cross-sectional
 bore portion as compared to the thickness of the
 wall at other portions of the tubular container. This
 25 thinner cross-section in the tip portion of the
 container allows for its ready fracturing when
 pressed against a hard unyielding surface. The fluid
 is then free to flow from the container into the
 fibrous material surrounding the ruptured tip.

U.S. Patent No. 4,430,013 uses a different
 approach in order to form a disposable swab article.
 Figs. 10 and 11 thereof illustrate a container encased
 in a foam applicator tip. The container is formed on
 one side from flat sheet stock having a domed
 35 receptacle on one surface. A cut or scored line is
 formed in the flat sheet stock to allow for rupture of
 the receptacle by bending of the flat sheet stock
 back onto itself as illustrated in Fig. 11. A somewhat
 similar approach is used in U.K. Patent No.

40 4,218,155 which in Fig. 3 illustrates a receptacle
 having a flat lower face joined to an upper face of
 trough shape. A rupture initiation line is provided at
 the outlet end of the thus-formed stick-like
 receptacles preferably on each of the faces of the
 45 article. U.S. Patent No. 3,757,782 illustrates the
 encasing of a tube member at either end in cotton or
 equivalent swab members. Either end of the tube
 contains a rupturable disc or membrane which is
 readily rupturable under internal liquid pressure
 50 formed if the tube member is pressed.

U.S. Patent No. 3,958,571 describes a swab
 applicator comprising an elongated hollow tube
 which is open at one end and normally closed at the
 opposite end and which contains a solution which is
 55 adapted to be dispensed from the tube. A swab of
 absorbent material is secured around the open end,
 and the opposite end is provided with means to
 open the end to permit the solution to flow by
 gravity into the swab.

The present invention relates to a dispensing
 apparatus which comprises a generally tubular
 container body portion which is adapted to hold a
 liquid to be dispensed from the container, the
 60 container body portion terminating in a tip portion
 having a more narrow cross-sectional area than the

cross-sectional area of the container body portion.
 The tip portion is adapted to be ruptured from the
 container body portion to allow egress of liquid
 from the container. An absorbent swab member
 70 covers the top portion of the container and the
 adjacent container body portion so as to be adapted
 to receive liquid from the container body when the
 tip portion is ruptured. The present dispensing
 apparatus differs from the applicator disclosed in
 75 U.S. Patent No. 3,519,364 since the container held in
 the absorbent swab has a tip of more narrow cross-
 sectional area than the main portion of the
 container, but of substantially the same thickness
 rather than being of greater cross-sectional area
 80 with a thinned wall. The present dispensing
 apparatus is also unlike the disposable swab article
 disclosed in U.S. Patent No. 4,430,013 since the
 entire container is of generally tubular shape rather
 than having a component formed of flat sheet
 85 material. Also, no score line is needed at the
 junction point of the tip and container body of the
 present dispenser such as is required in the article of
 the latter disclosure.

Referring to the accompanying illustrative
 90 drawings:

Fig. 1 is a side view showing the dispensing
 apparatus in accordance with the present invention
 prior to breaking of the tip portion from the
 container body; and

95 Fig. 2 is a fragmentary side view showing the
 present dispensing apparatus after the tip portion
 has been broken from the container body and liquid
 has been allowed to become absorbed by the swab
 material.

100 In general terms, the present dispensing
 apparatus illustrated in Fig. 1 comprises a generally
 tubular container 11 and an absorbent swab
 material 12 over the tip of the container. The
 container 11 is adapted to hold liquid 13 which is
 105 intended to be dispensed from the container into the
 swab material as will be described in greater detail
 below. Various types of liquid may be held in
 container 11. For example, cosmetics and medicines
 are intended to be within the scope of the present
 110 invention.

The container 11 contains a container body
 portion 14 in which the bulk of the liquid is held. The
 container body 14 is appropriately sealed at one end
 16. Its other end communicates with a substantially
 115 narrower tip portion 15. This tip portion may be
 easily ruptured by pressing of that end of the article
 against a relatively hard, unyielding surface.

Fig. 2 illustrates the configuration of the
 dispensing apparatus according to the present
 120 invention after the tip 15 has been broken from
 container body 14 and a portion of liquid 12a has
 been allowed to enter the interior of absorbent swab
 12. In a preferred embodiment, the container body
 14 is divided into a large container body reservoir
 125 14a which terminates in a narrower capillary section
 14b. The capillary section 14b is of greater cross-
 sectional area than the tip portion 15, but is narrow
 enough to allow for retention of liquid 13 within it by
 means of capillary action. If the container 14 is
 130 formed of a plastic material which is somewhat

deformable, squeezing of the container body reservoir portion 14a will dispense liquid 12a from the capillary portion 14b in a drop by drop fashion assuming appropriate dimensioning of the diameter of portion 14b (e.g., a diameter of about 0.25 cm) taking into account the characteristics of the liquid to be held therein. In this manner the liquid may be dispensed into the swab gradually to prevent its over-saturation.

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CLAIMS

1. A liquid dispensing apparatus which comprises:

- 15 (a) a generally tubular container body portion adapted to hold a liquid to be dispensed from the container, the container body portion terminating in a tip portion having a more narrow cross-sectional area than the cross-sectional area of the container body portion and being adapted to be ruptured from
20 the container body portion to allow egress of liquid

from the container; and

- 25 (b) an absorbent swab member covering the tip portion of the container and the adjacent container body portion so as being adapted to receive liquid from the container body when the tip portion is ruptured.

2. An apparatus as claimed in claim 1 wherein the container body (a) consists of a reservoir which terminates in a more narrow capillary section which in turn terminates in a more narrow capillary section which in turn terminates in a still more narrow tip portion.

3. An apparatus as claimed in claim 1 or claim 2 wherein the swab member is formed of cotton.

35 4. An apparatus as claimed in any of claims 1 to 3 wherein portion (A) is formed of plastic.

5. An apparatus as claimed in claim 1 substantially as herein described with particular reference to the accompanying illustrative drawings.